Source Water Assessment Program (SWAP) Report For Westport High School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared:
June 8, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	Westport High School
PWS Address	19 Main Road
City/Town	Westport, Massachusetts
PWS ID Number	4334012
Local Contact	Mike Duarte
Phone Number	508 636-1101

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	4334012-01G	193	492	High
Well #2	4334012-02G	193	492	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The wells for Westport High School are a public water supply currently serving a population of 598 students and staff. Well #1 is located in a well pit 350 feet west of the school. Well #2 is located in the basement of the school buildings. Well #1 and Well #2 are bedrock wells drilled to a depth of 346 feet and 140 feet, respectively. Well #1 and Well #2 have a Zone I of 193 feet and an Interim Wellhead Protection Area (IWPA) of 492 feet. The Zone I and IWPA protective radii are based on metered water readings. Please refer to the attached map of Zone I and IWPA. Well #1 and Well #2 are located in a bedrock aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminate migration. A diesel-powered generator provides emergency power.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The wells serving the Westport High School have no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is,**
2. **Floor Drain in Maintenance Garage with Oil/hazardous materials storage,**
3. **Potential discharge of Industrial Wastewater to the septic system,**
4. **Stormwater.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one High threat land use or activity in the Zone I, as seen in Table 2.

1. **Zone Is –** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. Well #1's Zone I contains athletic fields school driveways and parking areas. Well #2's Zone I contains school buildings, athletic fields, school driveway and parking areas, and an AST. The public water supplier does own all land encompassed by the Zone 1s. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

   Recommendations:

✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
✓ If the school intends to continue using the structures, driveways, athletic fields and parking areas in the Zone 1, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Floor Drain** - Floor drains that ultimately lead to the soil via a dry well or septic system are prohibited. A floor drain was observed within the maintenance area garages within the Zone I of Well #2 and IWPA of Well # 1. In order to determine its ultimate discharge location, the floor drain was snaked. The final discharge location could not be determined. There was no evidence of recent use the floor

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Floor drain	Well #2	Well #1, #2	High	Floor drain in maintenance building
Industrial Wastewater	No	Well #1, #2	Moderate	Science classroom and boiler blowdown discharge to septic system
Parking lot, driveways & roads	Well # 1, #2	Well #1, #2	Moderate	Limit road salt usage and provide drainage away from wells
Athletic Field	Well #1, #2	Wells #1 #2	Moderate	Fertilizer and pesticide use
Residential	No	Well #3	Moderate	3 Residences
Fuel Storage Above Ground	Well #2	Well #1, #2	Moderate	Diesel tank
Septic System	No	Well #1, #2	Low	Septic holding tanks and pumping station

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

drains at the time of the SWAP site visit. The floor drain at this location is a concern due to the current storage of gasoline, vehicle storage, and other chemical storage. Additionally, this area once served as the location for the high schools auto repair shop class.

Recommendations:

- ✓ Bring the floor drain into compliance with DEP's Regulations (refer to attachment-*Industrial Floor Drain Brochure*) by either:
  - I. Sealing the floor drain, if the floor drain is not needed (Plumbing inspector approval is acquired before sealing the drain. DEP formWS-1 is attached for this purpose) or,
  - II. Connect to a holding tank (Contact the UIC coordinator for the Southeast Region Office of the Department for additional technical assistance (Mark Dakers Tele. #508-946-2847).

3. **Industrial Wastewater**- Discharge from science classrooms and boiler blow down is required to go to a tight tank or sewer. A sump was observed in the boiler room. The sump receives all boiler room drainage and discharge via a sump pump to the septic system. The sump to is used to control flooding of the basement from groundwater and surface water infiltration.

Recommendations:

- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Please contact Jeff Gould in the Department's Water Pollution Control section at 508-946-2757 in order to discuss your management options.
- ✓ Westport High Schools is currently registered as a generator of hazardous waste. Review enclosed document entitled: "*A Summary of Requirements for Small Quantity Generators of Hazardous Waste*" to determine your regulatory requirements.

4. **Storm Water –** Northeast of Well #1 Zone I is a large unpaved parking area. Additionally, there are paved parking areas and driveways within the Zone I of Wells #1 and #2. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents. Catch basins transport storm water from the roadway and adjacent properties to the ground.

Recommendations :

- ✓ Have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ The Department recommends the public water supplier consider nonstructural techniques such as parking lot sweeping to reduce the amount of potential contaminants in storm water runoff. Additionally, the public water supplier may want to consider structural BMPs (e.g. stormwater swales, installation of curbs along the paved areas, detention basin, etc.) as part of a comprehensive storm water management plan for the site (refer to Storm Water Management Handbook, Volume 1 and 2 for information on BMPs).

Other land uses of concern - There is a double walled AST, with leak detection and alarm, located approximately 50 feet south-southwest of Well #2 and 210 feet southeast of Well #1 area. The AST Tank and generator are secured within a chain-link

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

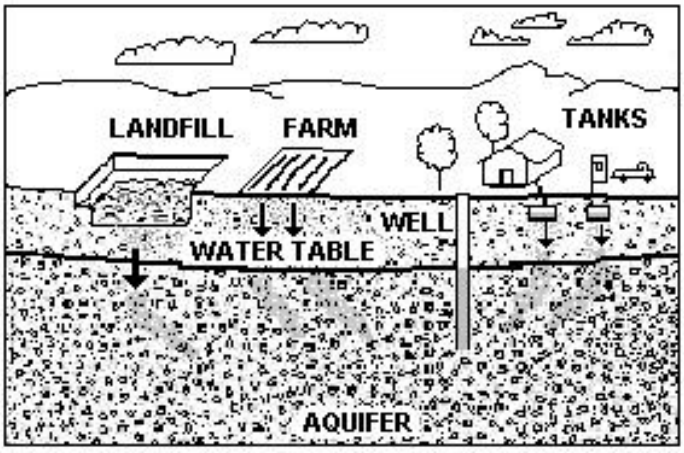

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Mark Dakers in DEP's Lakeville Office at (508) 946 - 2847 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, and the local media.

fence and enclosed within a shelter. If managed improperly, an AST in the Zone I/IWPA containing petroleum products is a concern due to the potential threat posed by a release of large quantities of fuel. Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check above ground tanks for leaks.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Westport High School is commended for its previous program of UST removal and its conversion of the heating system from oil to natural gas. Westport High School should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well pit for Well #1 by locking facilities, gating roads, and posting signs.
- ✓ Redirect road and parking lot drainage in the Zone I away from Well #1 and Well #2.
- ✓ Well #1 is a vault/pit installation. Pit installations for water supply wells are not approved by the Department due to the safety concerns associated with confined spaces, as well as the potential for the flooding of the Wellhead that could affect sanitary quality of the water being delivered. Consider extending the Wellhead to 18 inches above the final grade of the surface as part of future modifications to Well #1.
- ✓ Well #2 casing appeared to be in need of repair during the SWAP site visit. Make necessary repairs to prevent surface water and groundwater infiltration into the well.

Training and Education:

For additional help regarding environmental requirements and toxic use reduction approaches to compliance contact the Office of Technical Assistance for Toxic Use Reduction (OTA). The OTA is a nonregulatory agency within the Commonwealth's Executive Office Environmental Affairs. OTA provides free, confidential assistance on toxic use reduction opportunities (Refer to attachment for additional information).

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Drinking water protection signs were not posted at the time of the site visit. The Department recommends posting drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff from local roads is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.

- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank, be sealed, or be connected to a sanitary sewer.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

Planning:

- ✓ Work with local officials in Westport to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

5. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide and Fertilizer Use Factsheets
- Industrial Floor Drains Brochure
- Healthy Schools Fact Sheets
- Chemical Management and Other Environmental, Health and Safety Issues in Schools
- Office Technical Assistance Factsheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form
- WS-1 Form